

FIG 1

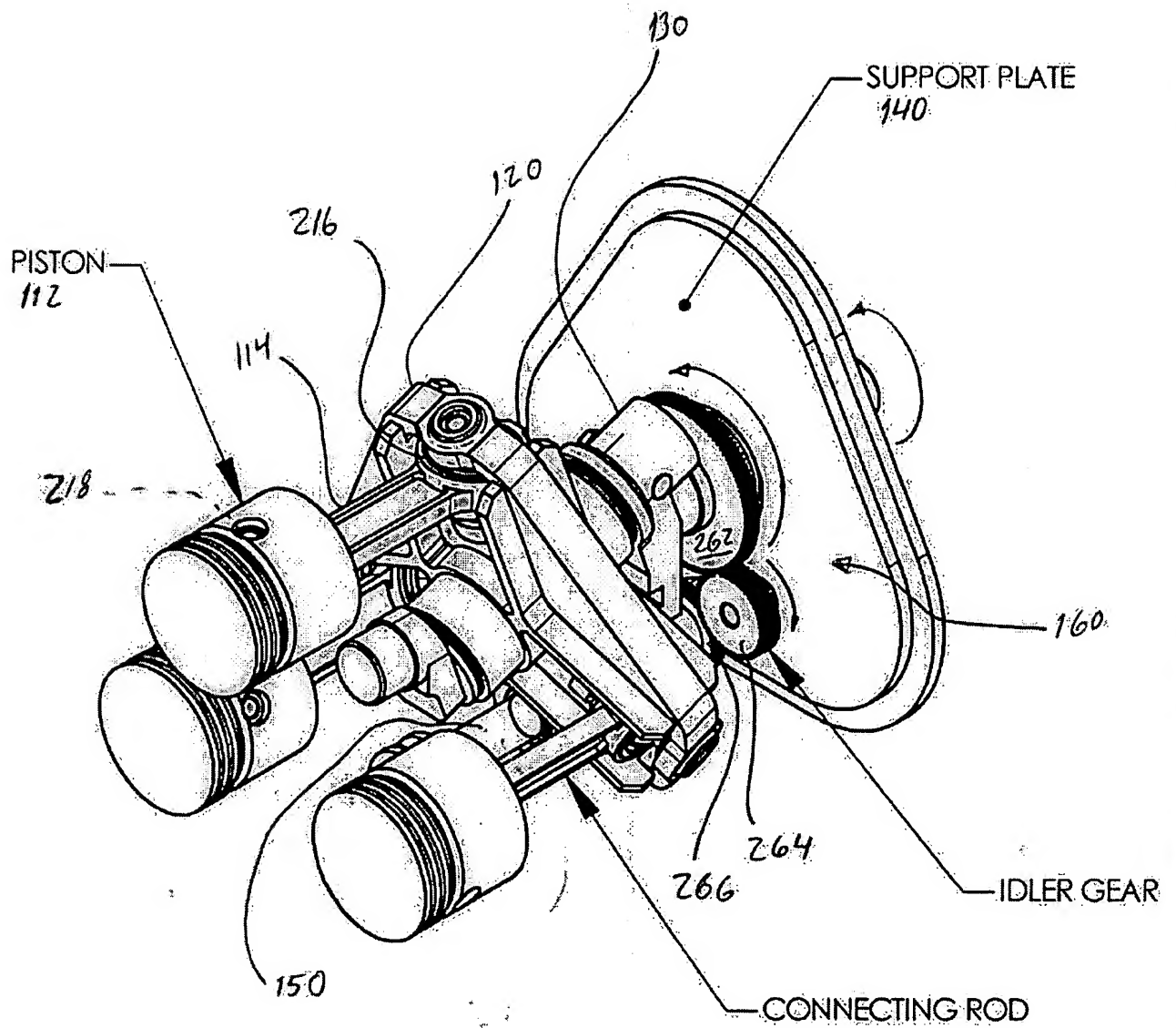


FIG 2

BEST AVAILABLE COPY

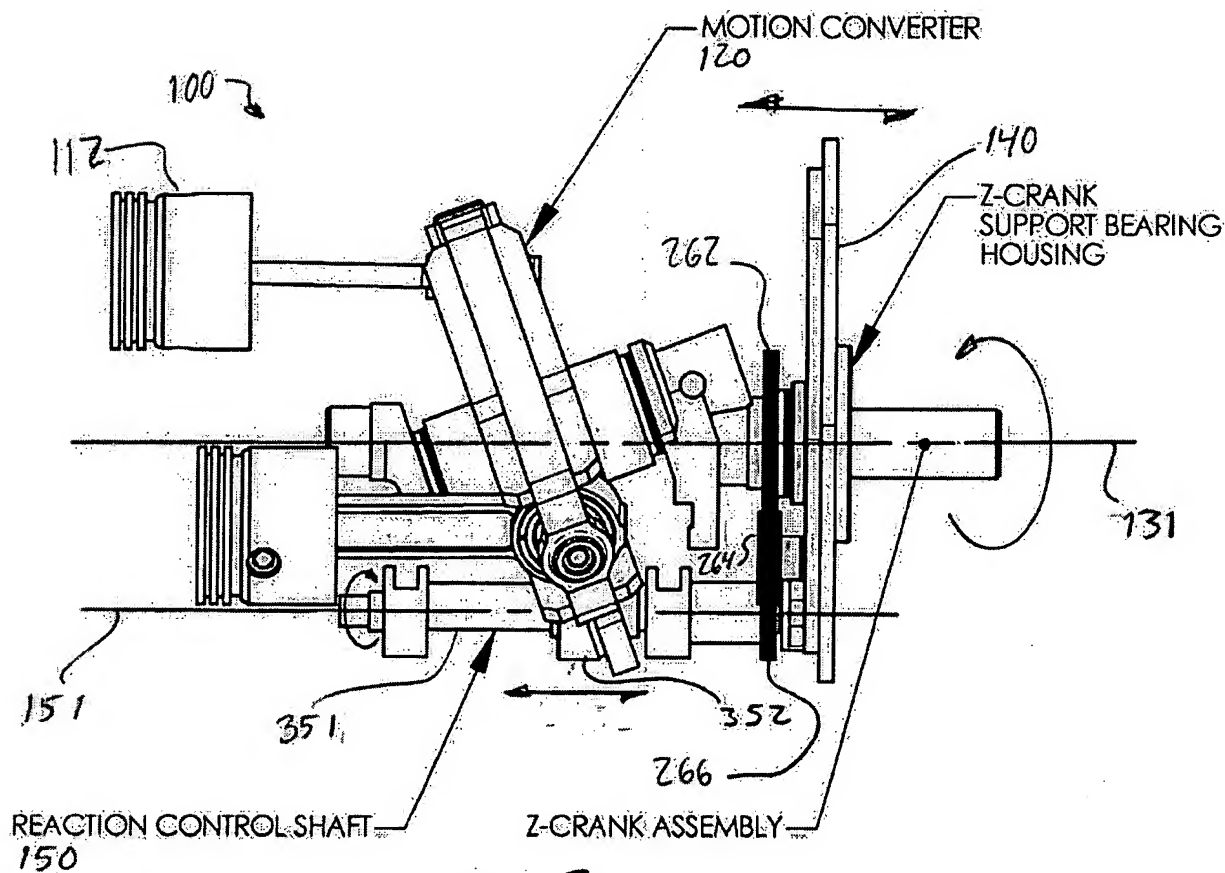
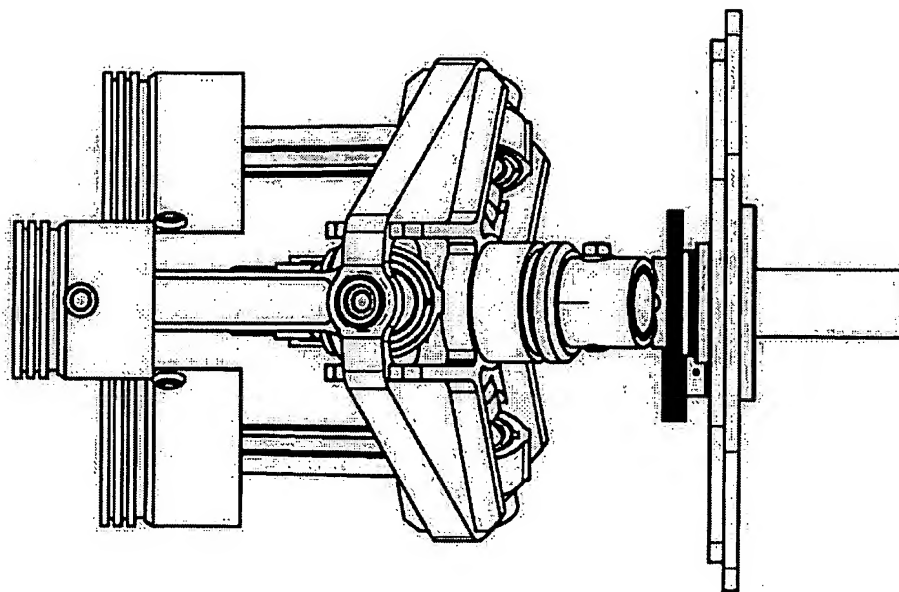


FIG 3

BEST AVAILABLE COPY

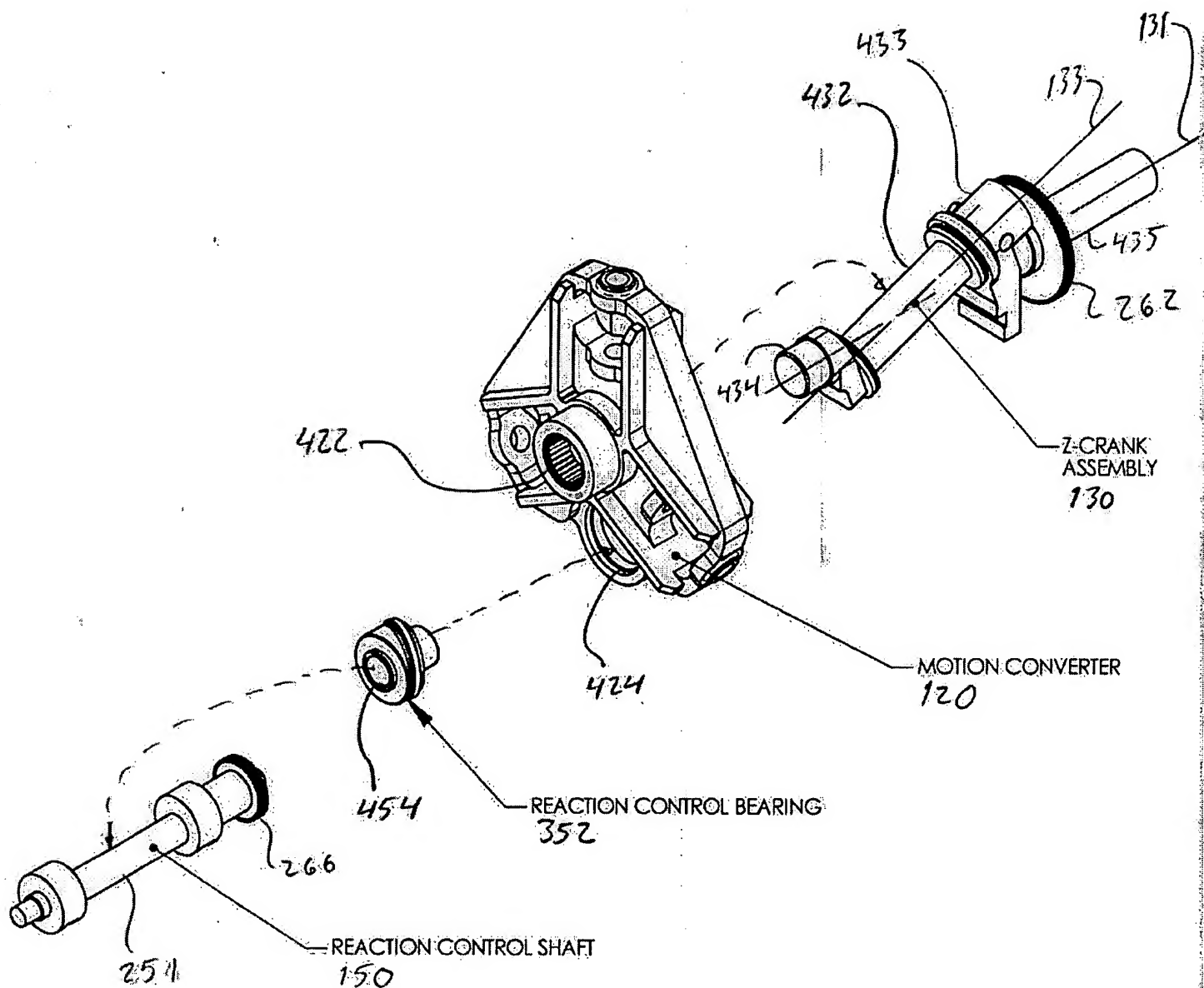


FIG. 4

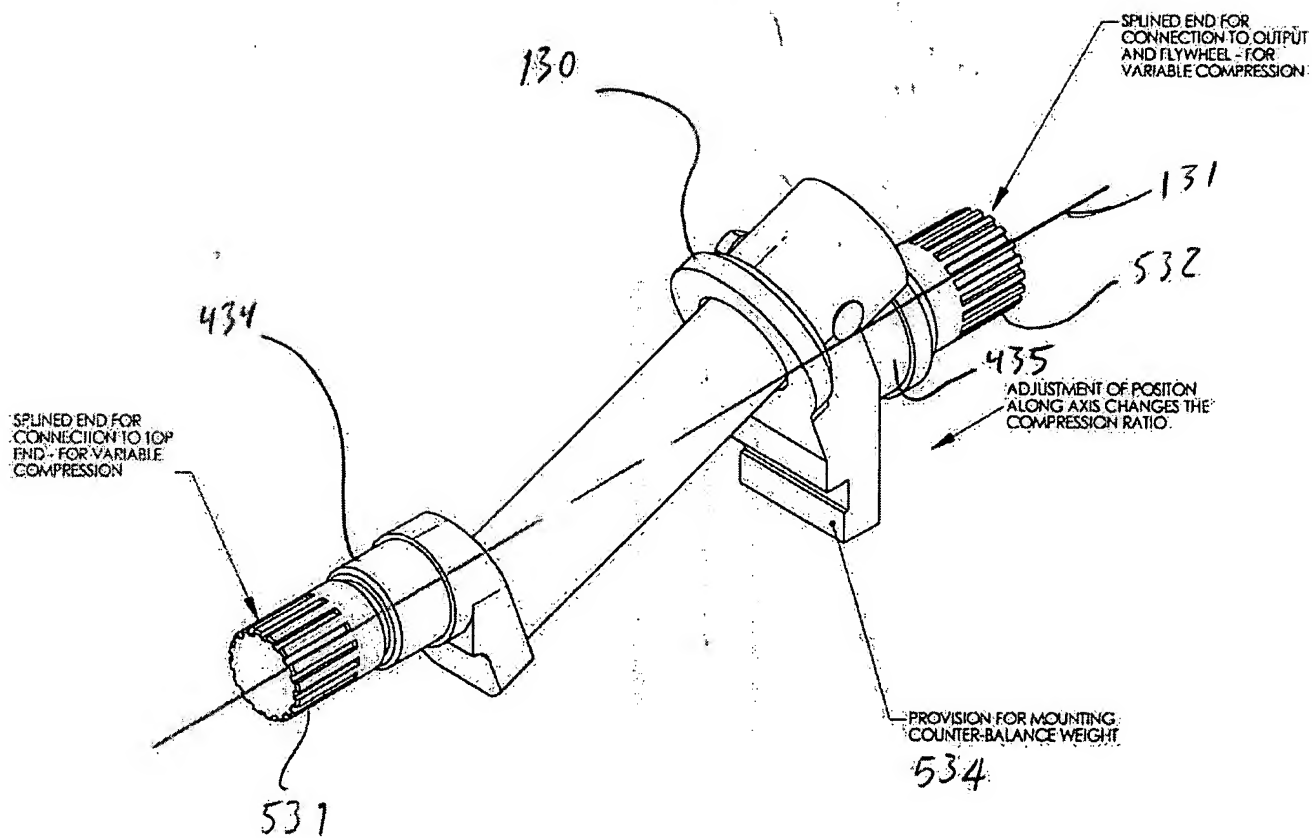
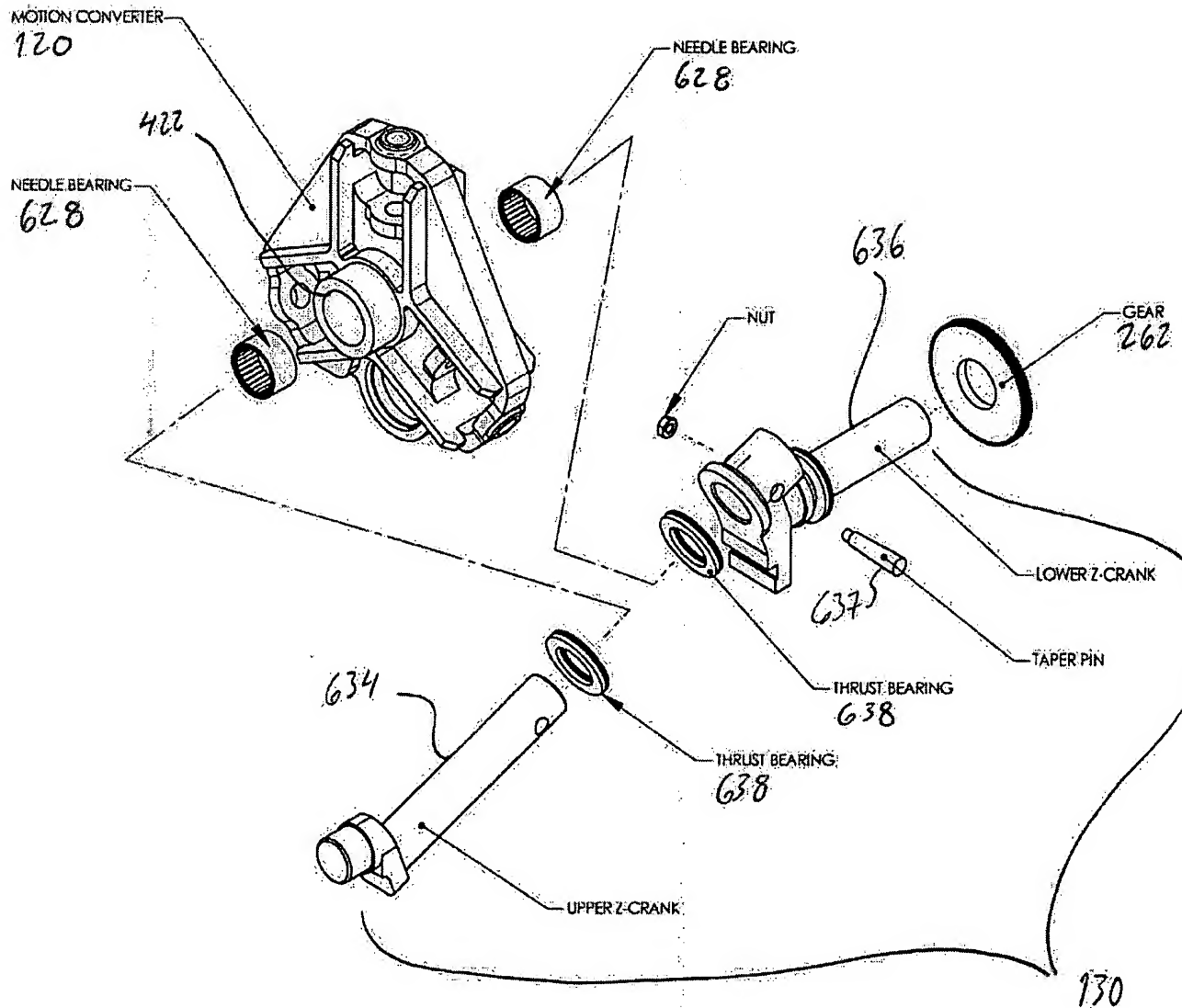


FIG 5

BEST AVAILABLE COPY



FLG 6

BEST AVAILABLE COPY

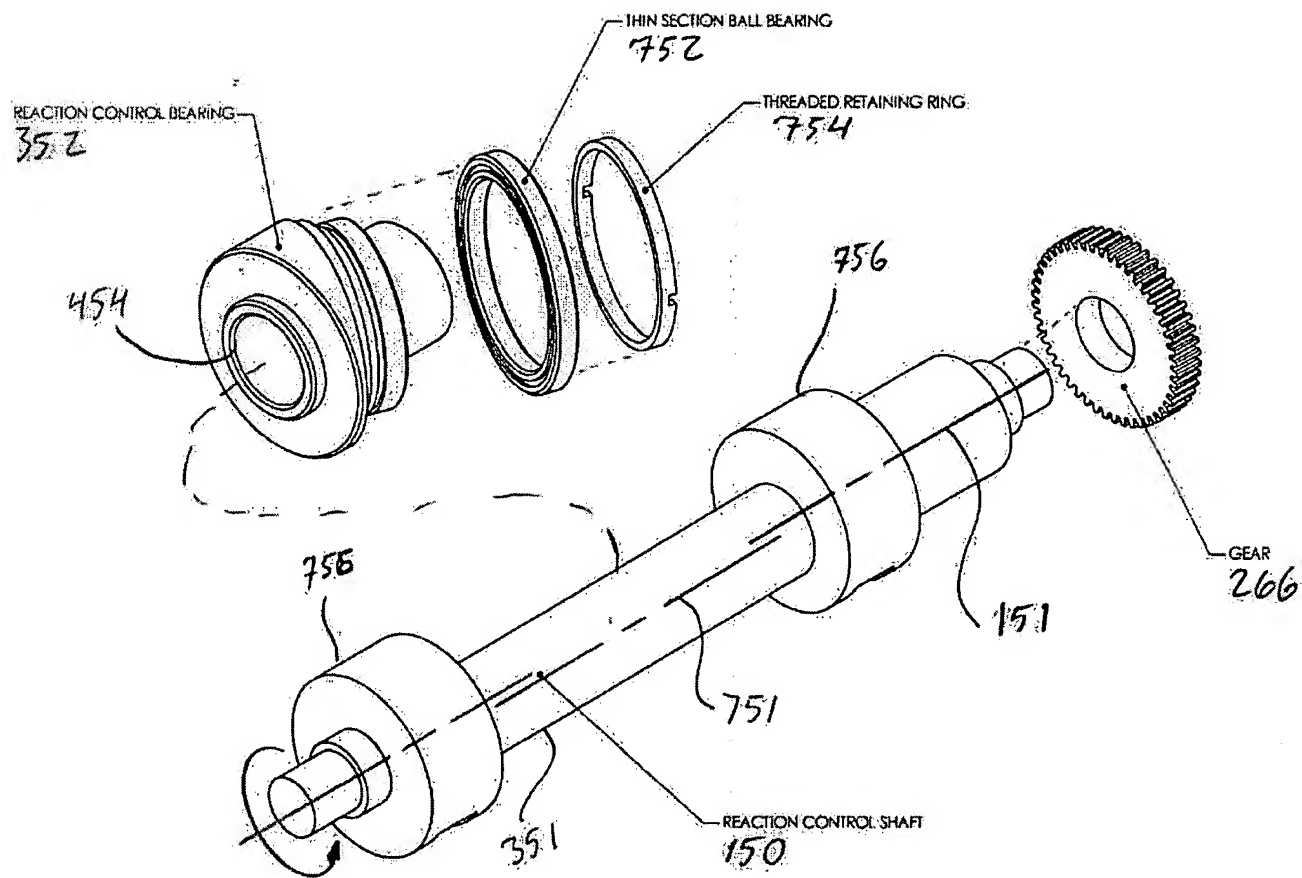


FIG. 7

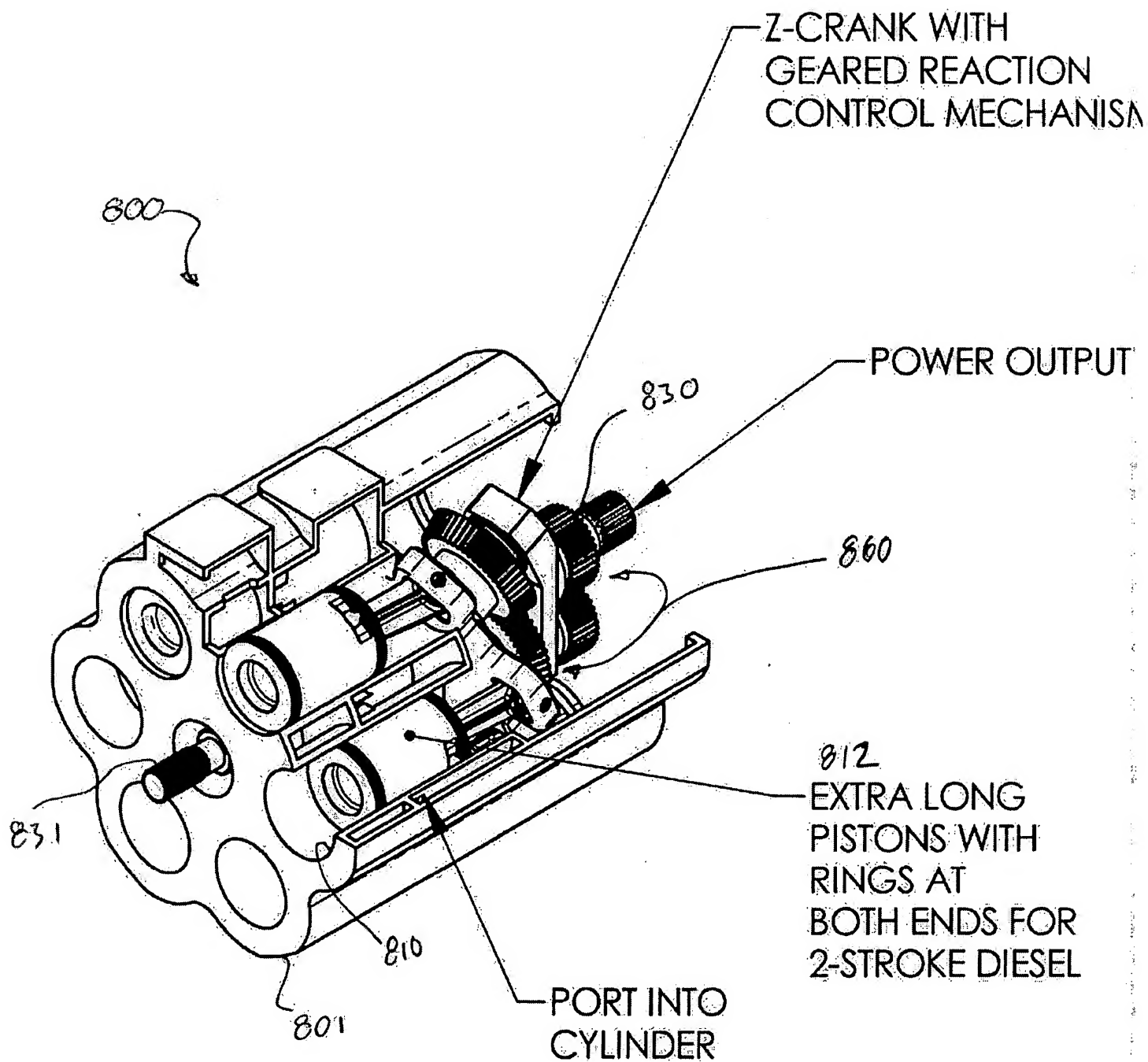


FIG. 8



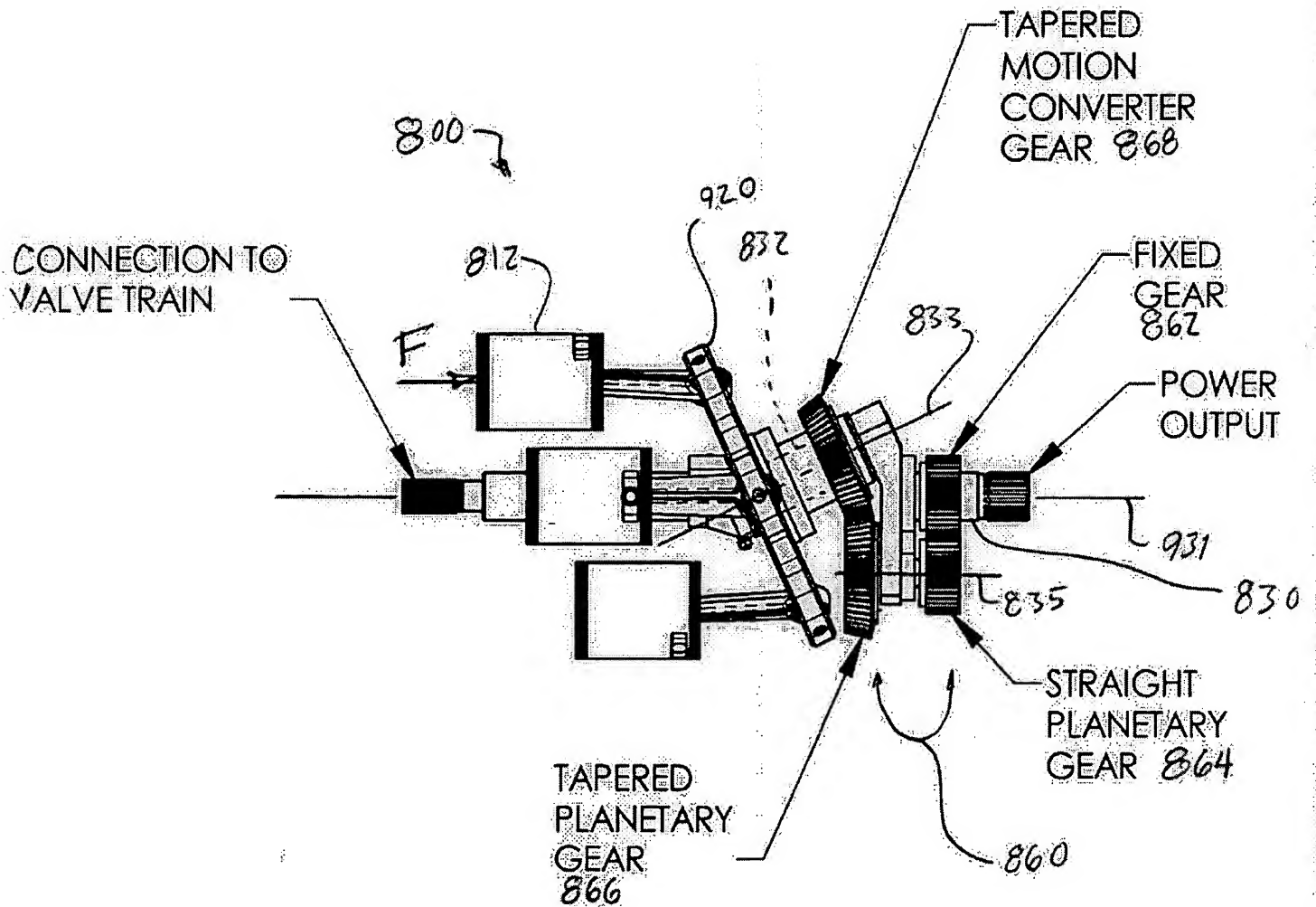


FIG 9

800

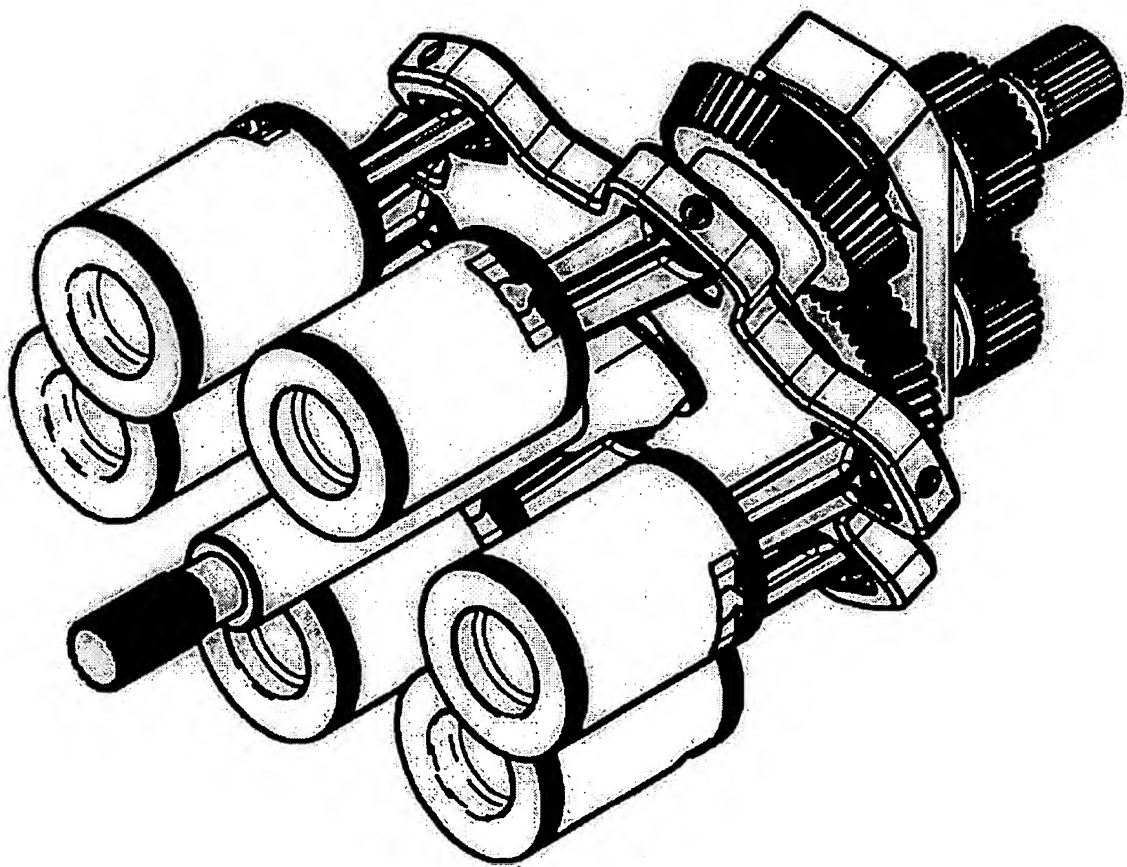


FIG 10

800

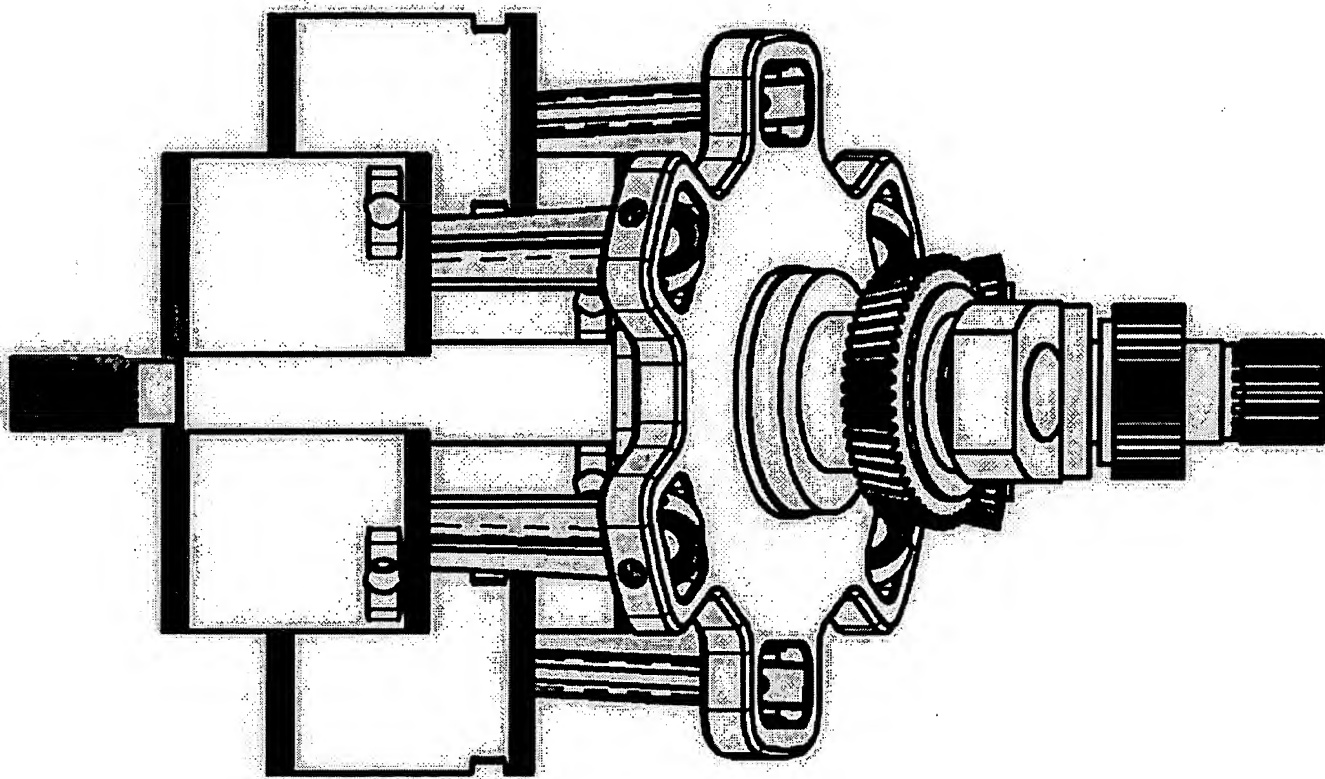


FIG 11

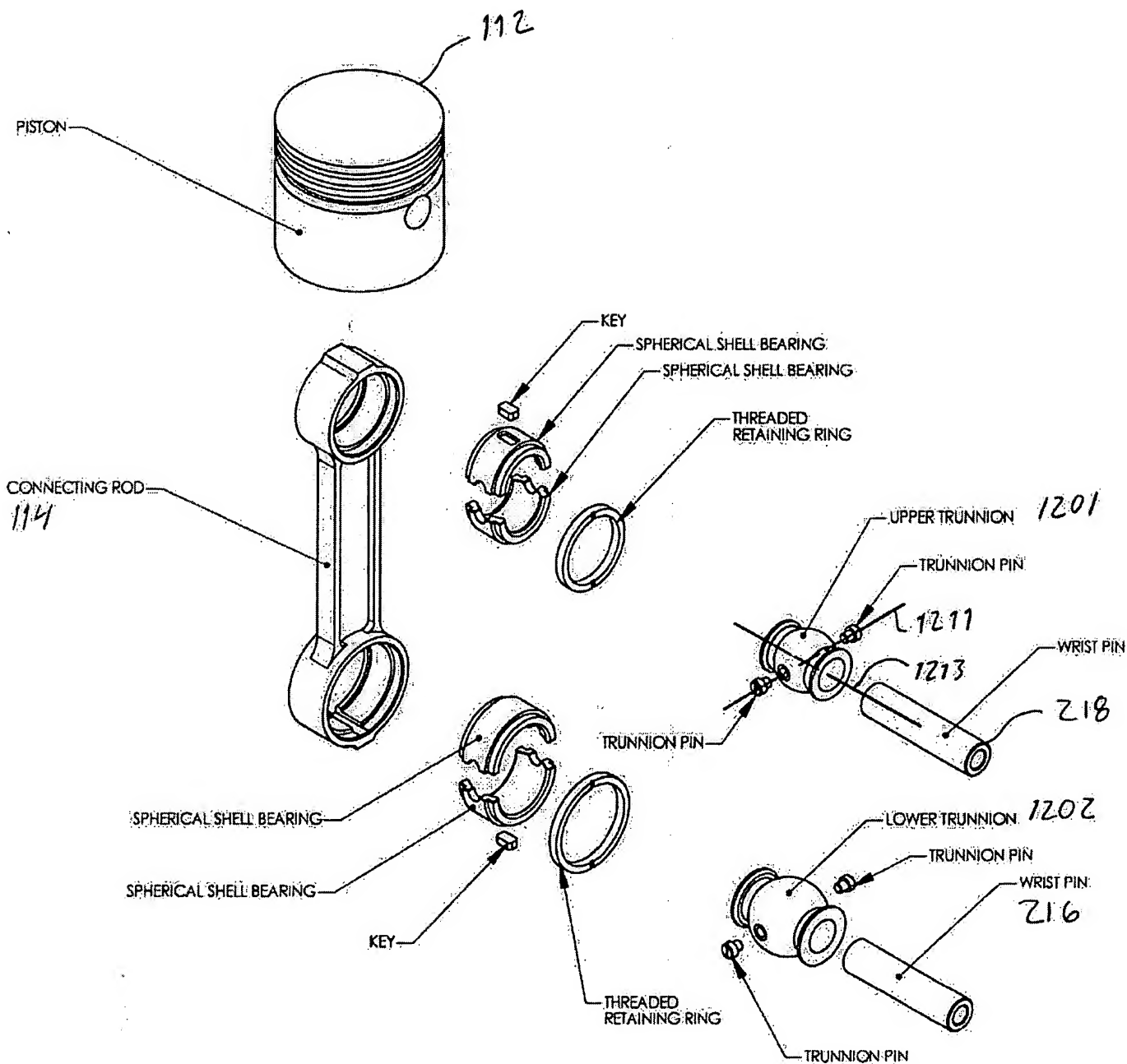
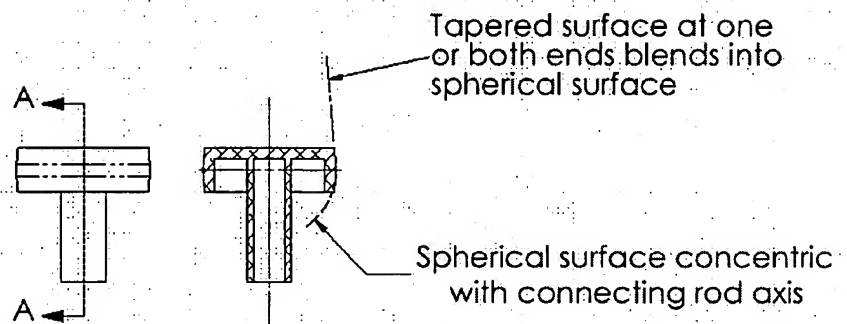
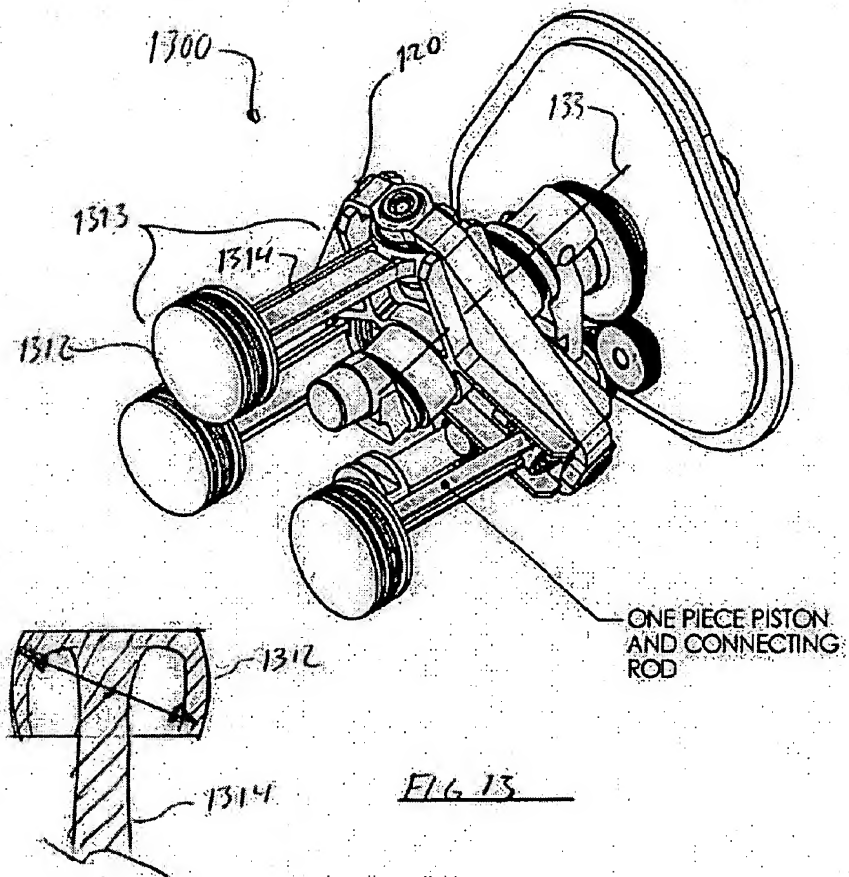


FIG 12



Note: grooves for piston rings omitted for clarity

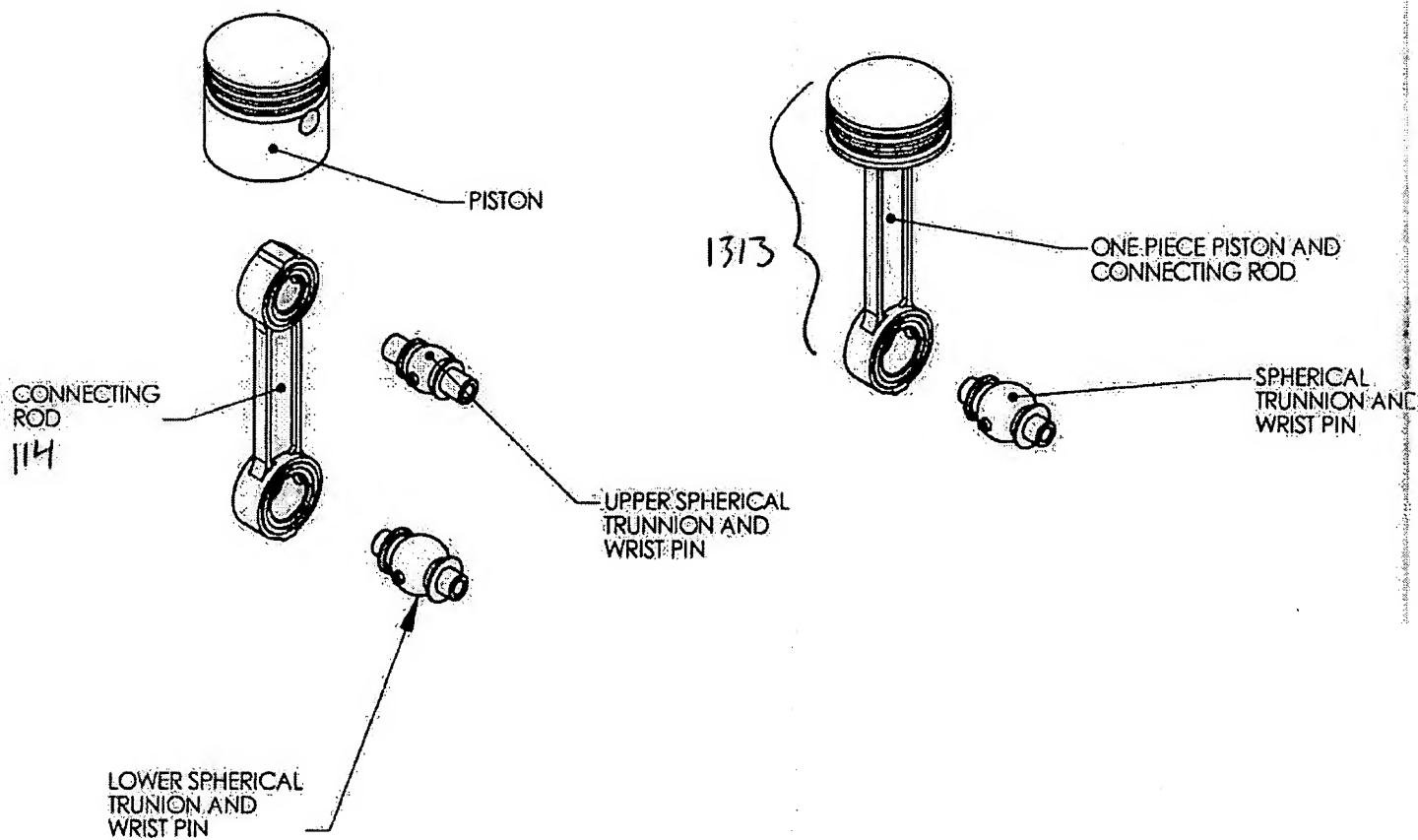


FIG 14

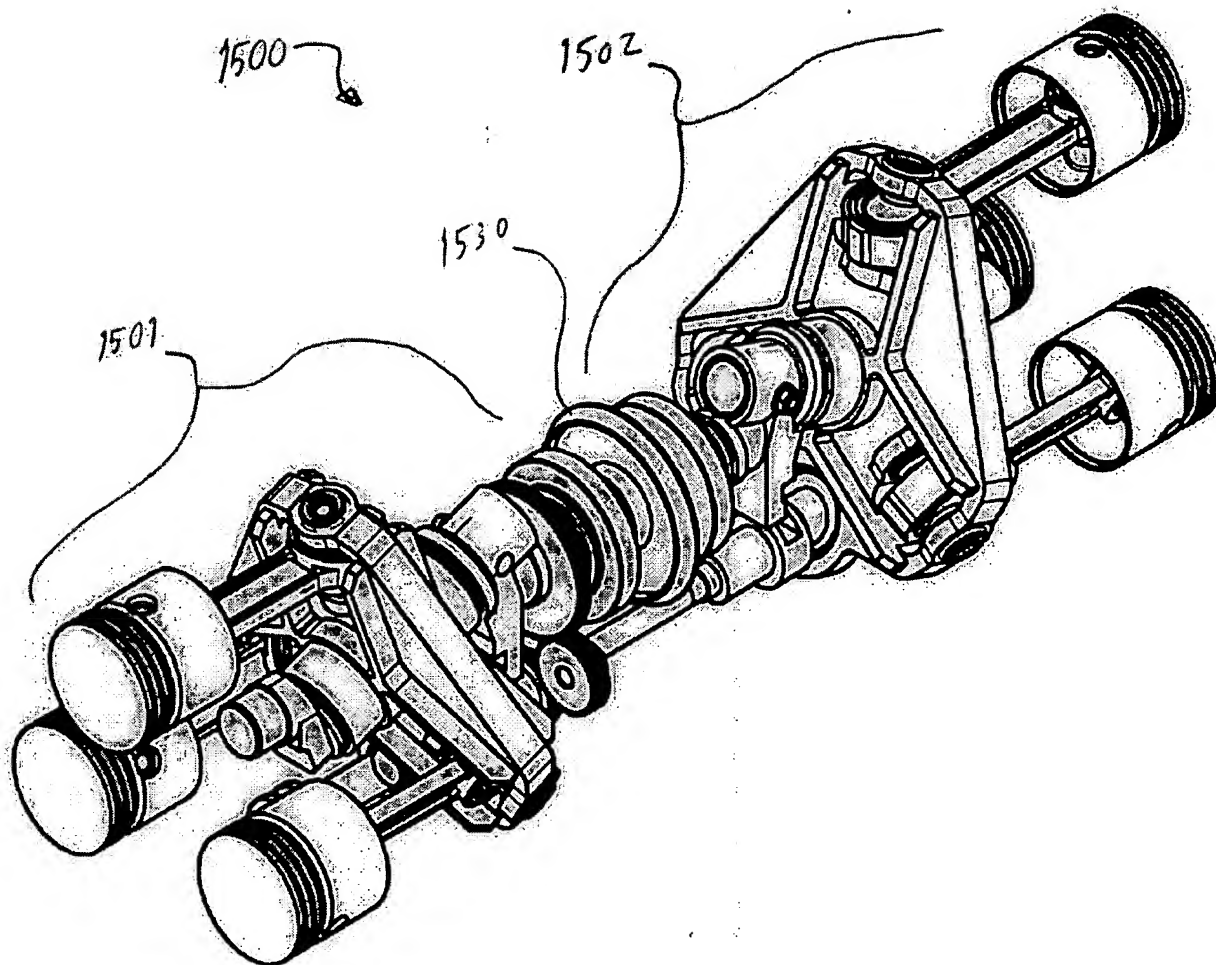
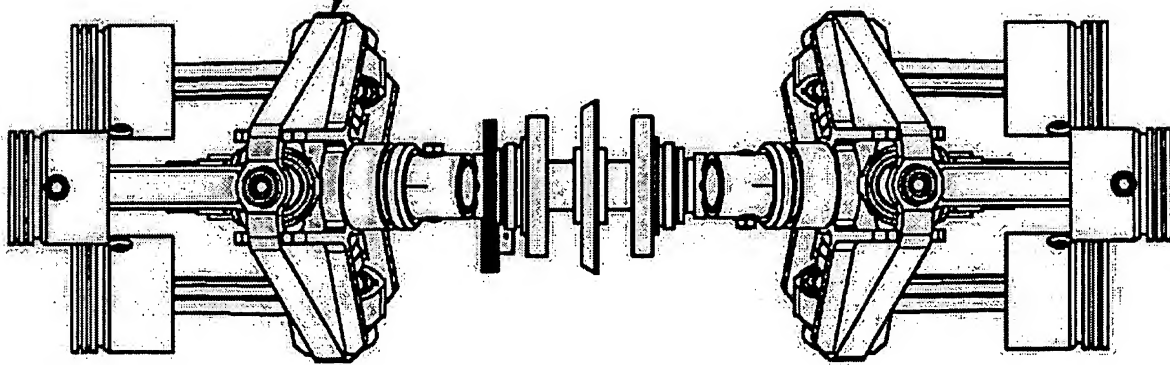


FIG. 15

BEST AVAILABLE COPY

OPPOSED MOTION  
CONVERTERS ARE IN  
PHASE FOR 4 STROKE  
ENGINES AND OUT OF  
PHASE FOR 2-STROKE AND  
COMPRESSOR APPLICATIONS



DUAL Z-CRANK CARRIES  
OPPOSED PISTON  
THRUST LOADS

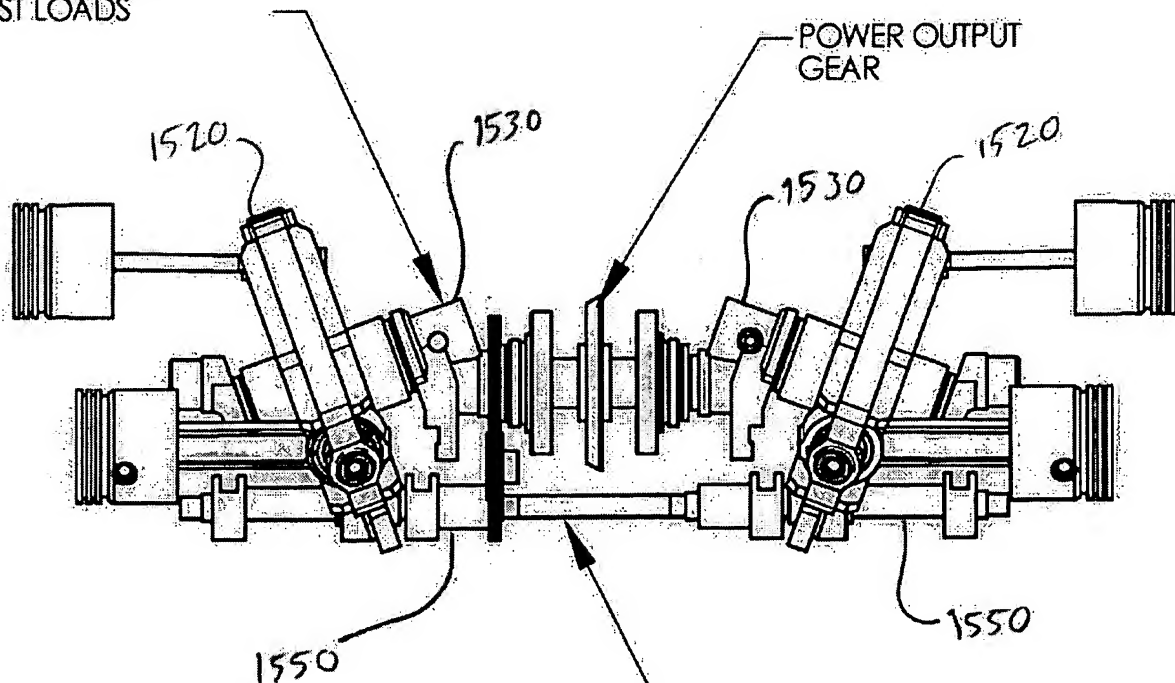


FIG 16

REACTION CONTROL SHAFTS  
ARE JOINED

BEST AVAILABLE COPY



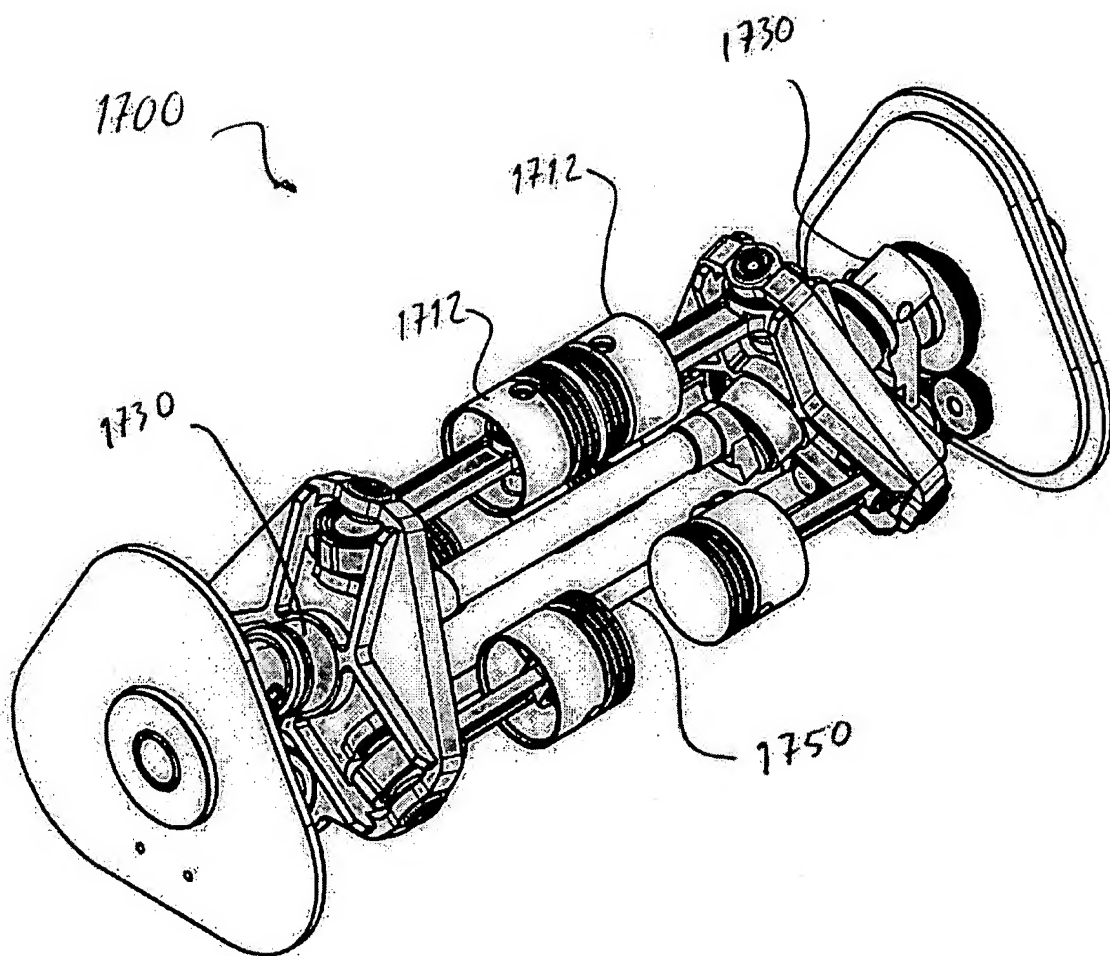
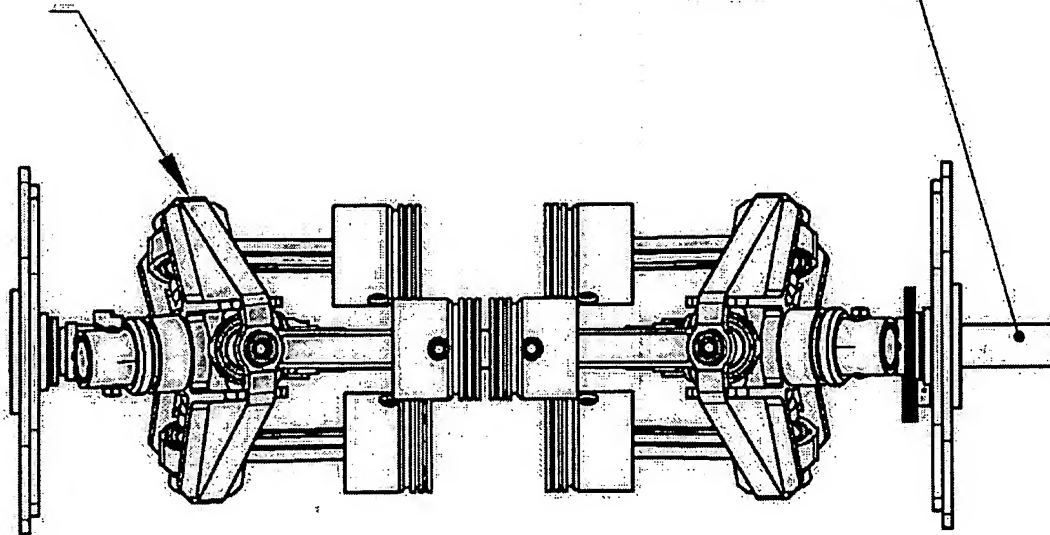


FIG 17

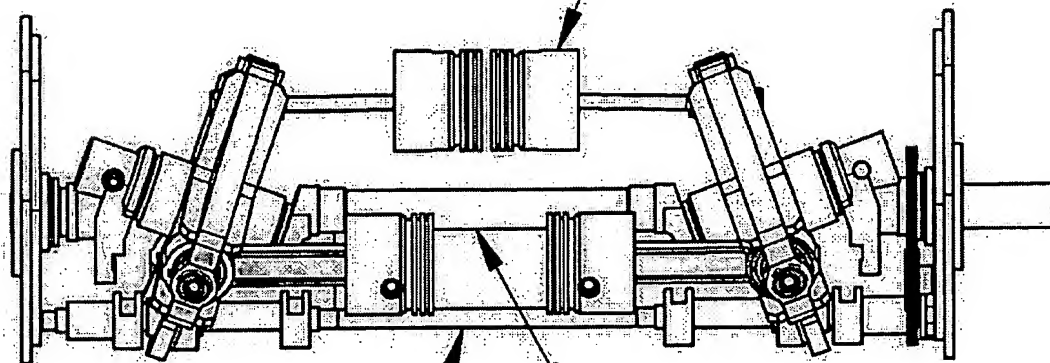
BEST AVAILABLE COPY

OPPOSED MOTION  
CONVERTERS ARE  
SLIGHTLY OUT  
OF PHASE

POWER OUTPUT  
SHAFT



OPPOSED PISTONS  
SHARE CYLINDER BORE



REACTION CONTROL SHAFTS  
ARE JOINED

DUAL Z-CRANK CARRIES  
OPPOSED PISTON  
THRUST LOADS

FIG 18

BEST AVAILABLE COPY